

The sole cause of the existence of such complete courses in other institutions than Oxford—over and above the primary one connected with the income from fees—is that the professor has to submit his scheme of lectures for the ensuing session or year in a general way to his colleagues, who would suggest to him a more complete or more representative program, were his proposals considered insufficient, and might take steps to supplement his teaching by the appointment of a supplementary professor (thus diminishing the original professor's income from fees), were he to prove intractable.

The keystone of the professorial system, on which all such control and persuasion, co-operation and reciprocal criticism, must rest, is the income from class-fees. In having not only not insisted upon this, but in having actually prohibited the free levying of fees, the Oxford Commissioners have made their scheme for professors absolutely unworkable. They have simply played into the hands of those who have at present a most injurious monopoly of the fees paid by students, and who give in return as little and as inadequate teaching as they please, namely, the confederacy of boarding-house keepers known as "college tutors and lecturers."

The proposal that professors should examine their classes and report to the Heads of Colleges as to the performance of each student was characterised by a spirit of petty interference quite unworthy of the large objects placed before the Commissioners, and has very properly been withdrawn. Such details, together with some other points, might well have been left by the Commissioners to the Councils of Faculties, which they so wisely intend to bring into existence.

It may be urged that if the Commissioners were to confine themselves in these and similar matters to creating the organisation which is terribly needed at Oxford, and of which these Councils of Faculties promise to be the most powerful and important part, they might with very great advantage leave the question of terminal examinations, and the scale of fees to be charged for lectures, &c., to be worked out by the reorganised University itself. But instead of prohibiting class-fees they should have strengthened the hands of the professoriate in the competition with the powerful band who are interested in maintaining the disastrous and absurd system of college tuition and tuition-fees. So long as the undergraduate is forced to pay to college tutors a lump sum of 25*l.* a year, he will seek his instruction (whether he finds it or not) from those whom he has been compelled to pay, and not from the professors whom he is not allowed to pay.

It is clear that with the present body of free-holders it was necessary for the Commissioners to insist on the new principle that a professor is not to be free from responsibility (*Lehrfreiheit*, we may observe, does *not* mean "freedom from teaching," as some writers who in the daily papers have recently appealed to German precedents almost seem to fancy), but is, on the contrary, to be charged with certain duties and to be responsible in a measure to his brother professors for performing those duties in a satisfactory manner.

ACADEMICUS

THE INTERNATIONAL GEOLOGICAL CONGRESS

THIS Congress is to hold its second session at Bologna, commencing on September 29, 1881, under the presidency of Signor Q. Sella, president of the Accademia dei Lincei of Rome, and under the patronage of His Majesty the King of Italy, who has liberally placed the necessary funds at the disposal of the Italian Committee of Organisation, of which Prof. J. Capellini of the Bologna Museum is the president, and General Taranelli of the University of Pavia the secretary.

The movement sprang out of a suggestion made at a

meeting of the American Association of Science held at Buffalo, New York, August 25, 1876, that an International Geological Congress was advisable, to insure uniformity of methods of representing geological phenomena, and the value of terms. Towards this end a committee of organisation was formed, of which Prof. James Hall was president and Dr. Sterry Hunt secretary, in which England was represented by Prof. Huxley, and Sweden by Dr. Otto Torell. The result of their deliberations was the first session of the Congress held at Paris, in the Palace of the Trocadéro, under the presidency of Prof. Hébert and the patronage of the Minister of Public Instruction. At the Congress, which lasted six days, two International Commissions were appointed, the one to consider geological cartography, with a view of adopting a common system of signs and colours, the other to investigate the possibility of effecting the unification of geological nomenclature and to consider all matters relating to stratigraphical classification and nomenclature, to a certain extent involving an inquiry into the value and significance of petrological and palæontological characters. A third Commission, entirely French, was also appointed to report on Bologna, on the rules to be followed in establishing the nomenclature of species in mineralogy and palæontology.

M. Renevier, general secretary of the first Commission, has just published his second report of progress, and states that advantage was taken of the presence of several members of the Commission during the fiftieth anniversary meeting of the Geological Society of France on April 2, 1880, to hold a meeting of the Commission at which five European countries were represented, under the presidency of M. Daubrée; since then, more or less detailed reports from nearly all the committees representing different countries have been received, except from Canada, presided over by Mr. Selwyn, and Great Britain by Prof. Ramsay. In some of these schemes there is a considerable amount of agreement. Quaternary deposits being represented by a pale green, Pliocene by pale yellow, Miocene dark yellow or orange, Eocene by bistre, Cretaceous by green, Jurassic by blue, Lias by violet, Trias by burnt sienna, Permian and Carboniferous by dark grey, Devonian by brown, or brown stripes on pink, Crystalline schists by rose carmine, Granite by dark carmine, divisions in the various rocks being expressed by tints of the same colour, or by shading or dotting.

The General Secretary of the Commission for the Unification of Nomenclature is M. Devalque, who reports that this Commission also met at the Paris Geological Society's anniversary, France being represented by M. Hébert, Switzerland by Prof. A. Favre, and Great Britain by Prof. Hughes. The latter Commissioner, aided by Prof. Prestwich, has now succeeded in organising a British sub-Commission, who have appointed six committees to inquire into groups of formations, and (1) to draw up a list of the names now in use; (2) to ascertain the true significance of such names or terms, giving reference to the authors by whom they were used in the first instance, or subsequently with a modified meaning; (3) to investigate into the synonymy of such names and terms in the first place as regards the British Isles, and afterwards to inquire into their correlation with them in use in other areas; and (4) to offer suggestions for the unification of the nomenclature. As the committees can seldom sit, as their members are scattered, they have been modelled on the principle of the Inquiry Committees of the British Association, and have attached to them one or two "reporters," charged with assimilating the views and facts collected by the Committee. The reporters for the British Isles, are for Recent and Tertiary rocks, Messrs. Starkie Gardner and H. B. Woodward; for Cretaceous rocks Messrs. Topley and Jukes-Browne; for Jurassic rocks Messrs. Huddleston and Blake; for Trias and Permian, Mr. De Rance and the Rev. A. Irving; for

Carboniferous, Devonian, and Old Red, Messrs. Morton and Strahan; for Silurian, Cambrian, and Pre-Cambrian, Messrs. Lapworth and Marr. For chemical, dynamical geology, petrology, and mineral veins Messrs. Bauerman and T. Davies.

The last-mentioned committee is specially to consider the question of nomenclature under the following general heads: (1) Terms founded on physical characters; (2) founded on mineral composition; (3) founded on names of places; (4) founded on local peculiarities and common usage; (5) founded on theories of origin and other hypotheses; (6) synonyms; (7) suggestions for systematising and for unification of nomenclature.

The Sub-commission or General Committee has Prof. Hughes for its chairman, and Mr. E. B. Tawney for its secretary; its duty is to receive the reports of the Committees and to consider the value of terms. The list of names forming the Sub-Commission includes those of Mr. Etheridge, P.G.S., Professors Bonney, Boyd Dawkins, Haughton, Hull, Judd, Lebour, Morris, Prestwich, Rupert Jones, and Seeley; Doctors Clement Le Neve Foster, Evans, Geikie, J. Geikie, Hicks, Nicholson, and Sorby, and the names already mentioned, of members acting as Reporters, Secretary, and the Chairman. The Sub-Commission consider that the word *system* should be used as the term indicating the largest sub-division, applied to a group which stands by itself, easily and clearly distinguishable from the rocks above and the rocks below, bounded above and below by triads in stratigraphical regions, and characterised by special forms of life. *Formation* expresses a smaller group, with some lithological and palæontological characters in common, but which may be in continuous sequence with the rocks above and below. *Deposit* implies similarity of lithological character. *Layers, laminae, bed, group, series, and rock* are still under discussion. *Zone* and *horizon* were defined; but *cycle* and *data* were left open questions.

Through the liberality of His Majesty the King of Italy, the committee of organisation are able to offer a prize of 5000 francs for the best suggestion for an international scale of colours and conventional signs practically applicable to geological maps and sections, including those of small scale. The index of colours and signs should be accompanied by maps representing regions of varied geological structure, and by an explanatory memoir in the French language. The documents should be marked with a motto, which should be placed on the outside of an envelope containing the name of the author, which will not be opened until the Congress, when the name of the successful competitor will be made known. The index and accompanying papers should be sent in to Prof. J. Capellini, director of the Museum at Bologna, by the end of May. The award will be made by a jury of five chosen from the presidents of sub-commissions. Should no index be thought worthy of the grand prize, the best will receive a gold medal of the value of 1000 francs, while to the two next will be given medals of silver and bronze of similar shape. C. E. DE RANCE

THE FALLS OF NIAGARA IN WINTER

IN the first week of last February it fell to my lot to make very hurriedly the transcontinental journey of 3500 miles from San Francisco to New York. Before starting I resolved that the one stoppage which I could allow myself *en route* should be made at Niagara. I had visited the Falls in the early summer of 1879, and was so profoundly impressed by them that I could not resist the opportunity of seeing them again under their wintry aspect; and I was confirmed in my resolve by seeing statements in various American papers to the effect that, owing to the long-continued and exceptionally severe cold of the present winter, the Ice-mountains at the Falls were

higher than had ever been previously known. These statements were confirmed to me on the spot by several persons long resident in the village.

Two or three preliminary notes on the journey across the Rocky Mountains in midwinter may not be without interest for the readers of NATURE. I left San Francisco on February 2nd in the midst of most serious floods, and on that particular day they attained their maximum, which was one inch higher than any previously recorded. It was estimated that 3500 square miles of the most fertile land of California was under water, and in many parts steamboats of light draught were plying over the country. Any assessment of damage would have to be made by millions of dollars. I heard many and grievous complaints of the damage done to the agricultural interests of the country by the "hydraulic mining," which washed the hillsides down into the river beds, filling them up, and thus prevented much flood-water from being carried off. In some places the railroad track had been apparently washed away, for it could not be found, and from this cause our journey to Sacramento was lengthened about fifty miles, as the gigantic ferry-boat *Solano* could not be used for the short route. This boat has four tracks upon it, and will carry twenty-four cars. As each car seats fifty people, this is equal to carrying a train that will accommodate 1200 people. It has four side-wheels, each with its engine and set of boilers. In crossing the Sierras we encountered little snow, but a great deal of rain. The greatest amount of snow on the journey was in the upper part of the Weber Cañon, 100 miles east of Ogden and Salt Lake. Here there had been considerable difficulty in keeping the line open during January, but the train-service had not been interrupted for a single day, although the snow-sheds and snow-ploughs were constantly required. That the weather had been unusually severe was shown by the very large number of dead cattle along the line, from Ogden across the Laramie plains, and also, I was informed, in Colorado. In the four days between San Francisco and Omaha (where we arrived punctually), the terminus of the Pacific Railroad, the temperature was never below 26° F., and the air so still that I frequently saw smoke-rings from the locomotive funnel expand to 6 or even 8 feet diameter, rising perhaps 30 or 40 feet in doing so. All the cars were warmed, usually to too great an extent, from 70° to 75° F., being the normal temperature for the interior of railway cars, hotels, private houses, and schools, as far as my experience went.

East of the Missouri (which, like all the rivers I crossed, was frozen over) trains were everywhere very much delayed, owing to snowstorms, or to the slippery state of the rails, which were coated with ice. The utmost caution was used by those in charge of trains, and a strong impression was left on my mind that safety, and not speed or punctuality, was the primary consideration in such American railway management as I came across.

On leaving Chicago a phenomenon presented itself which is common enough in America, though but rarely seen in this country, and never on so gigantic a scale. For several days the temperature had been very low, and every object was exceedingly cold. On the night of February 6th, the air-temperature rose to 33° F., and fine rain fell. This froze upon everything and encased it with transparent ice, from which in many instances delicate icicles depended. Sad havoc was played with the overhead telegraph wires in Chicago itself (which were broken by the weight); but on leaving the city in the early morning the exceeding beauty of the whole country, usually so uninteresting from its flatness, became apparent. A light coating of snow lay on the ground, but everything, every twig, every dead leaf, every blade of grass, had its own transparent covering, which in the occasional gleams of the sun shone with the most gorgeous colours.